

Natural Resource Damage Assessment: Qualifications and Proposal

Submitted by
Research Triangle Institute
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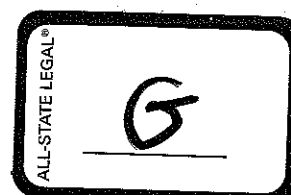
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2. QUALIFICATIONS

Table 2-3. Selected Key Personnel on RTI's Team for Natural Resource Damage Assessment Projects

Research Triangle Institute	
<p>William H. Desvousges (Leader of RTI Team)</p> <p><i>Title:</i> Senior Economist</p> <p><i>Highest Degree:</i> Ph.D., Economics</p> <p><i>Years of Experience:</i> 13</p> <p><i>Work Location:</i> Research Triangle Park, NC</p> <p><i>Phone:</i> (919) 541-5803</p>	<p>Dr. Desvousges is a leading national expert on measuring natural resource damages. His work on this topic began in 1986 when he wrote the technical report on economic techniques for measuring natural resource damages for the U.S. Department of the Interior NRDA regulations. In 1987 he led a study for the U.S. Department of Justice on the social cost of a formaldehyde release into the Russian River in California. He also helped develop the work plan for a preliminary NRDA on the damages attributable to copper mining/processing in southwestern Montana. In 1988 Dr. Desvousges advised the National Park Service on the natural resource damages resulting from PCB contamination in Jamaica Bay, New York. He also led an economic appraisal of the NRDA regulations for the American Petroleum Institute. Most recently, he led a preliminary NRDA on the Martinez oil spill for Shell Oil Company. In the last two years, Dr. Desvousges has spoken at three NRDA conferences and has provided litigation support.</p>
<p>Richard W. Dunford (Associate Leader of RTI Team)</p> <p><i>Title:</i> Senior Economist</p> <p><i>Highest Degree:</i> Ph.D., Agricultural Economics</p> <p><i>Years of Experience:</i> 13</p> <p><i>Work Location:</i> Research Triangle Park, NC</p> <p><i>Phone:</i> (919) 541-6224</p>	<p>Dr. Dunford has worked closely with Dr. Desvousges in developing the preliminary NRDA as a cost-effective alternative to a full-scale NRDA. Specifically, Dr. Dunford worked on: the preliminary NRDA on the Martinez oil spill, the economic appraisal of the NRDA regulations for the American Petroleum Institute, and the study of the formaldehyde spill in the Russian River. He also directed the development of the work plan for the preliminary NRDA on the damages attributable to copper mining/processing in southwestern Montana. Dr. Dunford presented a 90-minute seminar on natural resource damages at the Superfund '87 Conference in Washington, DC, in November of 1987.</p>
<p>Glenn E. Morris</p> <p><i>Title:</i> Senior Economist</p> <p><i>Highest Degree:</i> Ph.D., Economics</p> <p><i>Years of Experience:</i> 14</p> <p><i>Work Location:</i> Research Triangle Park, NC</p> <p><i>Phone:</i> (919) 541-7252</p>	<p>Dr. Morris is currently leading the development of a questionnaire to obtain information on the value to households of changes in risk associated with drinking water. In another related effort, he led the development of a questionnaire to obtain information from state drinking water administrators on issues related to implementing new regulations, and he will lead analyses of the collected data. His other past projects include examining the effects of a severe drought in the Southeast on public water systems; performing regional benefit-cost analyses of water-intensive resource development in the western United States; and estimating national economic development benefit-cost ratios for six water-related recreation projects. Dr. Morris has been an expert witness on several energy and water resource projects.</p>
Entrix, Inc.	
<p>Gordon A. Robilliard</p> <p><i>Title:</i> Vice President, Environmental Services</p> <p><i>Highest Degree:</i> Ph.D., Zoology</p> <p><i>Years of Experience:</i> 17</p> <p><i>Work Location:</i> Walnut Creek, CA</p> <p><i>Phone:</i> (415) 935-9920</p>	<p>Dr. Robilliard is currently leading a study on the short-term and long-term biological impacts of the Martinez oil spill for the State of California and Shell Oil Company. He has also conducted studies of natural resource injuries from the Puerto Rican oil spill; a jet fuel spill in Pearl Harbor, Hawaii, that threatened mangroves and endangered bird habitats; a dredged material slurry spill on mudflats in a northern California bay; a diesel fuel spill near Amacortes, Washington; and an oil spill in a slough connecting to San Francisco Bay. Dr. Robilliard has helped develop more than 20 oil and hazardous chemical spill contingency plans; as well as emergency response and implementation plans. Most of this work involved assessing the fate of spilled oil and the probable impacts to the biological resources; developing plans to minimize impacts to the biological communities; and developing practical means to clean up or restore impacted biotic communities.</p>

3. PROPOSAL FOR MEASURING NATURAL RESOURCE DAMAGES

3.3.1 Background

The natural resource damage assessment process is an evolutionary one. The DOI regulations are an important benchmark in the process, but are unlikely to be the final word on conducting damage assessments. The first biannual review of the DOI regulations is now in the final stages of completion. As noted earlier, the legal challenges may change the DOI regulations. The RTI team has followed these challenges and reviewed the briefs filed in Federal District Court.

Other changes in damage assessments may come from the State trustees who are responsible for implementing them. States face a difficult choice in deciding whether to follow the DOI regulations, or to chart a separate course for an assessment. The main advantage in following the DOI regulations is that the State's damage claim is given the legal status of a rebuttable presumption. While there is some disagreement over the extent of the advantage from such presumption, it would probably put the State in a stronger position than if it pursued its own course. However, as we discuss further below, in some situations the DOI regulations are likely to yield lower damages than would be determined using conventional economic principles. The most significant factor in determining this difference is the importance of losses in the nonuse services.

Given the evolutionary nature of the natural resource damage assessment process, the RTI team's approach is to provide the State of Montana with several estimates of damages to enable the State to make a more informed choice about whether or not to follow the DOI regulations. These estimates would include damages following the DOI regulations, damages calculated on both use and nonuse losses in services, and damages calculated for alternative interpretations of other key elements in DOI regulations. The additional cost of providing alternative damage estimates is usually modest, while the value of the additional information gained can be quite high. Because our proposed damage assessment approach covers the six basic factors that must be addressed in any damage assessment, it has the flexibility to provide a wide range of damage assessment information that will be useful for the State of Montana.

3.3.2 Transition Between Assessments

If the screening assessment shows that a full-scale, or Type B assessment, is appropriate, the trustee is supposed to complete the third and final step: the assessment plan itself. An important part of this plan is to choose the economic methodology that will be used in the actual assessment. Here trustees must choose between restoration costs or foregone use values as the basis for measuring damages.

In our experience, the choice between restoration costs and diminution of use values is likely to have little operational significance on conducting a damage assessment. Two main reasons support this conclusion: First, most damage

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The losses compensable to a Federal or State Agency acting as a trustee under CERCLA are for uses of the resource by members of the public at large. They do not include any direct or indirect losses suffered by a private commercial user of public resources. Direct private commercial losses appropriately are not recovered by a public body acting for the public at large. (p. 27680)

An example will help to illustrate this distinction. Suppose the release of a hazardous substance injures the natural biological services from a lake. Under the regulations the public trustee is allowed to recover any losses from decreased uses of the lake by any citizens. However, the trustee is not allowed to recover any lost wages or income for people who conduct a business at the lake—e.g., a marina or canoe rental service. These individuals would be required to bring a private action, probably in the State courts.

The basis for this distinction is primarily DOI's interpretation of the CERCLA legislation. Although the CERCLA definition appears to apply only to public resources, such resources may still have both public and private uses. Using DOI's lake example, the lake's value would be based on all the services it generates for society. As noted earlier, these services would include both uses and nonuses. The basis for measuring damages would be the change in the lake's services, with and without the injury.

Whether private losses such as reduced income or wages would be included is more complicated. Based on the value of the lake's services, these would not be included because they are payments to individuals for their financial capital or labor services. Lost income is not reflected in the value of the resource itself. However, the RTI approach recognizes that it is important to avoid double counting if private claims are sought.

The third and final important issue in determining the types of natural resource services to be included in the full-scale assessment is the treatment of nonuse values. The role of nonuse values in the natural resource damage regulations has created considerable controversy.

The regulations define option value as the dollar amount that people who are not currently using the resource are willing to pay to preserve their option to use that resource in a certain state of being in the future. Existence value is the maximum amount people are willing to pay to know that a resource would continue to exist in a certain state of being, even though they have no plans to use the resource. The "state of being" can be interpreted as a level of quality—e.g., the quality of a mountain lake in its pre-injury condition.

The economics literature has only recently begun to resolve the conceptual and empirical issues involving option value, or nonuse value more generally. Nevertheless, there is a consensus among natural resource economists that nonuse values are a legitimate part of the total value of natural resource

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services. There is less consensus on how large these values might be. When defined and measured correctly, the RTI team's position is that nonuse values should be added to use values to get the total damages. The rationale for our position is presented below.

From a strictly economic perspective, the logic in the regulations breaks down because nonuse values are excluded for many of the situations where they are likely to be most significant. For example, Smith [1987] argues that nonuse values are likely to be most significant for unique resources. These resources, however, are likely also to have the highest use value because of their uniqueness. By only including nonuse values, when there are no use values, DOI has severely limited the role of nonuse values in the estimation of damages.

The definition of "committed uses" (discussed earlier) adds another "Catch-22" element. Nonuse values can only be measured for committed uses, but these committed uses cannot involve any current use. This combination further restricts the potential importance of nonuse values in natural resource damages. From an economic perspective, the relevant issue is whether people who are now nonusers have a right, or value, to use the resource in the future. Under the DOI regulations, these values are not included.

While there is little support in the economics literature for DOI's position, there is some disagreement in the literature itself over the exact nature of nonuse values, and especially over how to measure them. Recently, however, there appears to be some agreement on how and when to separate the nonuse components. This is especially true in Smith [1987], McConnell [1983], Bishop [1988], and Smith and Desvousges [1988].

The RTI team has considerable experience in measuring nonuse values. We have pioneered the development of survey-based methods that have received considerable attention in peer-review journals. RTI also is nationally recognized for its survey capabilities which also further support to our ability to provide the State of Montana with a damage assessment that can withstand professional scrutiny.

Step 4: Quantifying the Losses in Natural Resource Services

In this step, the RTI team will determine the extent to which natural resource services have been reduced as a result of the injuries. The types of services that are relevant to full-scale assessment include

- Provision of habitat, food, and other needs of biological resources;
- Recreation;
- Other products or services used by humans;
- Flood control;